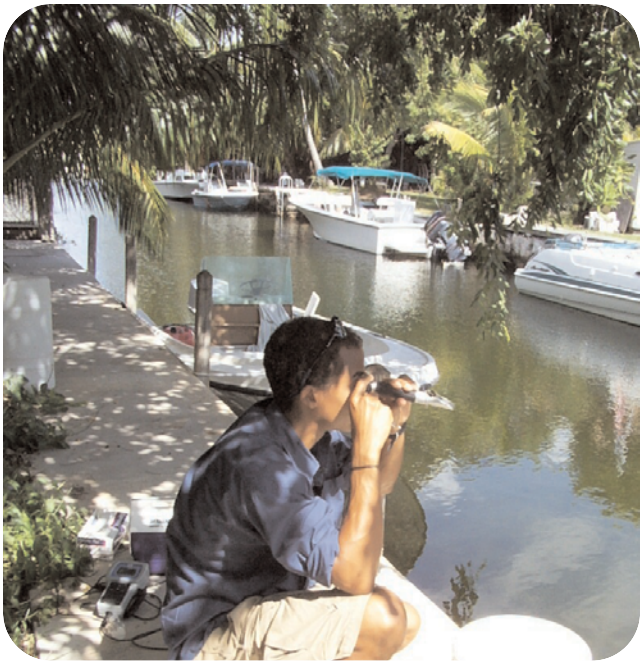
TNC's Florida Keys Watch Tests Canal Waters

The Nature Conservancy has been testing canal water once every two weeks at 17 sites throughout the Florida Keys since August 2002. The testing program, known as Florida Keys Watch, calls for canal water to be measured for dissolved oxygen, salinity and temperature. Samples are then collected and analyzed for enterococcus bacteria. Enterococcus bacteria live in the intestines of warm-blooded mammals, including humans, and occur naturally at low levels in water and soil. However, high levels of this bacteria indicate the presence of disease-causing agents known to cause swimming-related gastrooenteritus and other illnesses in humans.

As a protective measure, the U.S. Environmental Protection Agency (EPA) has set a recommended guideline for enterococcus levels in marine waters. Anything above the EPA guideline of 104 colony forming units (CFU) of enterococci per 100 milliliters of water is considered to be unsafe for swimming.

TNC intern Justin Campbell records data collected from a canal as part of the Keys Watch Program. (Photo: Jenny Conner)

In the first three months of samples taken during last winter's dry season, The Nature Conservancy found approximately 18 percent of the 17 sites averaged more than 104 CFU. Samples collected after a week of heavy rains in December 2002 showed 59 percent were above that level, some registering CFU in the thousands. "It is not surprising to see elevated bacterial levels after heavy rains, but the magnitude of contamination observedfollowing the rain fall was startling," said Brad Rosov, Marine Conservation Program Manager for The Nature Conservancy.



TNC intern Justin Campbell uses a refractometer in a Keys canal to determine the salinity of the water (Photo: Jenny Conner).

Florida Keys Watch is a two-part water quality testing program to determine the levels of bacteria in Keys canals and then locate the source of the contamination through sophisticated viral pathogen screening. "People have asked legitimate questions about whether humans were part of the water quality problem in the Keys. Florida Keys Watch was started to answer those questions," said Jody Thomas, Director of the Conservancy's South Florida and the Florida Keys Program.

The six sites that showed the highest levels of bacteria are being screened further for the presence of viral pathogens. By documenting the presence of viral pathogens, scientists can determine whether human waste is the source of the bacteria contamination. This study is a follow-up to a 1999 University of South Florida study by Dale Griffen *et. al.* that found viral pathogens in Keys canals were linked to humans.

Note: This article first appeared in the Spring/Summer 2003 issue of the newsletter of the Florida Keys National Marine Sanctuary, **Sounding Line.** *For more information, visit:* **fknms.floridakeys.noaa.gov.**